"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

1/2 008 UNCLASSIFIED PROCESSING DATE--21NOV70

TITLE--USE OF A VARIATION PRINCIPLE FOR CALCULATING THERMODYNAMIC FUNCTIONS OF THE INTRAMOLECULAR ROTATION OF SYMMETRIC TOPS -U-

AUTHOR-(03)-MOSIN, A.M., NURULAYEV, N.G., MIKHAYLOV, A.N.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(5), 1359

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--THERMODYNAMIC FUNCTION, VECTOR ANALYSIS, MOLECULAR PHYSICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/0875 STEP NO--UR/0076/70/044/005/1359/1359

CIRC ACCESSION NO--AP0136309

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

2/2 008 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0136309

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MATRIX ELEMENTS OF THE ENERGY OPERATOR CAN BE OBTAINED BY RESOLN. INTO A FINITE FOURIER SERIES. THE CHARACTER OF THE FUNCTION SYMMETRY CAN BE OBTAINED BY THE ANAL. OF PROPER VECTORS OF THE OPERATOR WHICH ENABLE THE DETN. OF THE CORRESPONDING ENERGY LEVELS AND THE CALCN. OF THE THERMODYNAMIC FUNCTIONS.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

USSR

UDC 621.374.4(088.8)

KURMAYEV, A. ZH., MIKHAYLOV, A. M., GEL'BSHTEYN, L. S., SLAVNIN, V. A., ODINTSOV, L. N., KOZLOV, A. I., KOROLEVA, R. A., STREL'NIKOV, A. D.

"Pulse Repetition Rate Dividing Circuit"

USSR Author's Certificate No 277845, Filed 9 Jan 69, Published 20 Oct 70 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4G247P)

Translation: A frequency dividing circuit is proposed, which contains a cycle signal source, a square-wave source, a switch in the cycle signal circuit, a frequency divider and a comparison circuit. In order to improve the noise resistance of the cycle pulse time selection in the presence of low frequency noise, the device is also equipped with a pulse converter included between the divider and the comparison circuit. The converter output is connected to the control input of the switch in the cycle pulse circuit.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

1/3 025 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--INFLUENCE OF HEAT TREATMENT ON THE STRUCTURE AND PROPERTIES OF SURFACE ALLOYED CASTINGS FROM STEEL 30L -U-

AUTHOR-(04)-BELYATSKAYA, I.S., MIKHAYLOV, A.M., NOVICHKOVA, V.YA., SIDOKHIN, A.F.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., CHERN. MET. 1970, 13(4), 163-6

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CAST STEEL, ANNEALING, METAL NORMALIZING, X RAY SPECTRUM, METAL SURFACE PROPERTY, ALLOY PHASE TRANSFORMATION, CARBIDE PHASE, MICROHARDNESS, THERMAL STABILITY, SURFACE HARDENING, ALLOY ADDITIVE/(U)30L STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0809 STEP NO--UR/0148/70/013/004/0163/0166

CIRC ACCESSION NO--AT0132904

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6"

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273 025

UNCLASSIFIED

CIRC ACCESSION NO--AT0132904 PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INFLUENCE OF ANNEALING AND NORMALIZING ON THE STRUCTURE AND THE PROPERTIES OF LAYERS OF CASTINGS FROM STEEL 30L WAS STUDIED. THE SAMPLES WERE HEATED TO 800DEGREES FOR 1.5 HR, AFTER WHICH THEY WERE COOLED IN THE FURNACE (ANNEALING), OR IN AIR (NORMALIZING). MICRO X RAY SPECTRAL ANAL. SHOWED THAT THE DISTRIBUTION OF THE ALLOYING ELEMENTS ALONG THE DEPTH OF THE LAYERS FOR ALL PRACTICAL PURPOSES DOES NOT CHANGE AS COMPARED TO THE DISTRIBUTION IN THE CAST STATE. THIS TREATMENT EXERTS THE LEAST EFFECT ON THE STRUCTURE OF MN ALLOYED LAYER. THE CHANGES OCCUR PRIMARILY IN THE TRANSITION ZONE BETWEEN THE LAYER AND THE MATRIX METAL. AFTER NORMALIZING, SECONDARY CARBIDES SEGREGATE IN THE DIFFUSION BAND, AND THE MICROHARDNESS OF THE AUSTENITE INCREASES TO 500-700 DK-MM PRIME2, APPARENTLY OWING TO PARTIAL MARTENSITIC TRANSFORMATION. AUSTENITE DENDRIETES WITH A MICROHARDNESS OF 300-20 KG-MM PRIME2 AND CARBIDE EUTECTIC REMAIN PRIMARILY IN THE CAST ZONE OF THE LAYER. THE MATRIX STEEL AT THE BOUNDARY WITH THE ALLOYED LAYER HAS A MARTENSITIC STRUCTURE WITH A MICROHARDNESS OF 650-700 KG-MM PRIME2 AND THAT OF TROOSTITE MARTENSITE. AFTER ANNEALING, THERE OCCURS PARTIAL PEARLITE TRANSFORMATION IN THE DIFFUSION BAND. THE MICROHARDNESS OF HTE PEARLITE PORTIONS AMTS. TO 280-380 KG-MM PRIM2, AND THAT OF THE AUSTENITIC PARTS TO 280-300 KG-MM PRIME2. THE CARBIDE PHASE IN THE CAST STATE AND AFTER THERMAL TREATMENT IS A CARBIDE OF THE (FE, MN) SUB3 C TYPE, WITH A MICROHARDNESS OF 800-1100 KG-MM PRIME2.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

UNCLASSIFIED PROCESSING DATE--04DEC7

3/3 025

CIRC ACCESSION NO--AT0132904

ABSTRACT/EXTRACT--THE GOOD THERMAL STABILITY OF THE ALLOYED LAYERS IS ATTESTED TO BY THE LACK OF CRACKING OR THEIR PHASE SEPN. FROM MATRIX METAL.

FACILITY: MOSK. INST. STALI SPLAVOV, MOSCOW, USSR.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

1/3 027 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--SURFACE HARDENING OF CASTINGS BY ALLOYING MATERIALS -U-

AUTHOR--MIKHAYLOV, A.M.

COUNTRY OF INFO--USSR

SOURCE--LITEINOE PROIZVOD, 1970, 2, 27-8

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CAST IRON, ALLOY DESIGNATION, METAL SURFACE HARDENING, CARBIDE, CHROMIUM ALLOY, METAL SURFACE IMPREGNATION/(U)3OL CAST CARBON STEEL, (U)SCH1836 CAST IRON, (U)FKH004 IRON CHROMIUM ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/1361 STEP NO--UR/0128/70/002/002/0027/0028

CIRC ACCESSION NO--AP0116811
UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

2/3 027 UNCLASSIFIED PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0116811

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PLATE SPECIMENS (180 TIMES 200 MM, 20, 30, AND 40 MM THICK) FROM STEEL 30L, AND CAST IRON SCH18-36 WERE CAST IN CONTACT WITH THE PASTE COMPOSED OF FE, CR (FKH004) 96 AND FE, MN (MN4) 4 WT.PERCENT. THE PASTE WAS APPLIED AS A SAND OIL MIXT. TO THE MOLD PROVIDED WITH A SEVERAL THERMOCOUPLES FOR MEASURING TEMPS. AT INTERFACES, AND THE STEEL 30L WAS POURED IN AT 1590DEGREES, OR ALTERNATIVELY, CAST IRON SCH18-36 AT 1400DEGREES. WITH CAST IRON, THE TEMP. AT THE BOUNDARY WITH THE PASTE INCREASED TO A TEMP. HIGHER THAN THAT OF THE CAST METAL; THIS MAY BE DUE TO THE EXOTHERMIC REDN. REACTIONS BETWEEN CR OXIDES AND C. THE GRAIN SIZE OF FE, CR HAD A CONSIDERABLE EFFECT ON THE THICKNESS OF THE ALLOYED LAYER AND ALSO ON THE MECHANISM OF THE INTERACTION BETWEEN THE STEEL AND THE PASTE. WITH GRAIN SIZE 0.2-0.6 MM THE LAYER WAS 6.60-10.10 MM THICK. WITH SMALLER GRAIN SIZE THE SINTERING TOGETHER OF PASTE PARTICLES REDUCED THE THICKNESS OF THE LAYER AT GRAINS 0.10-0.20 MM TO 4.50-6.0 MM, BUT AT 0.063-0.10 MM THE THICKNESS AGAIN INCREASED TO 12.5 MM. WITH THE STEEL, 3 ZONES COULD BE DISTINGUISHED WITHIN THE ALLOYED LAYER. THE OUTSIDE SURFACE OF THE CASTING WAS COMPOSED OF THE ALPHA SOLID SOLN. AND COARSE CARBIDES LOCATED BOTH WIN AND AT THE GRAIN BOUNDARIES. THE 2ND ZONE WAS MORE UNIFORM AND HAD SMALLER CARBIDE PARTICLES ALONG THE GRAIN BOUNDARIES. THE 3RD ZONE HAD A STRUCTURE TYPICAL OF DIFFUSIONAL FORMATION. THE STRUCTURE OF THE CAST IRON LAYER WAS MORE UNIFORM AND WAS COMPOSED OF FE, CR GRAINS WITH CR CONTG. CAST IRON IN BETWEEN.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

3/3 027 UNCLASSIFIED PROCESSING DATE--090CT70

CIRC ACCESSION NO--AP0116811

ABSTRACT/EXTRACT--THE PROPERTIES AND THICKNESS OF THE ALLOYED LAYER SHOULD BE REGULATED WITH PASTE COMPNS., BASE METALS, GRAIN SIZE OF PASTE COMPONENTS, AND MANNER OF PUTTING THE PASTE ON THE MOLD WALLS.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

IN THE COMMITTEE FOR INVENTIONS AND DISCOVERIES
UNDER THE COUNCIL OF MINISTERS USSR

[Announcement: Moscow, Vestnik Akademii Nauk SSSR, Russian, No 7, July 1973, pp 132-133]

The Committee has registered the following scientific discoveries:

V. P. KAZHINSKIY, S. P. SHUBIN and P. P. MIKHAYLOVA. "The effect of intercellular distant electromagnetic interactions in a system of two tissue cultures."

Formulation of the discovery: Experimentally established was the previously unknown effect of distant intercellular electromagnetic interactions between two tissue cultures during the action on one of them of factors of biological, chemical or physical nature with characteristic reaction of the other (intact) culture in the form of a "mirror" cytopathic effect, which determines the cell system as a detector of modulation peculiarities of electromagnetic radiation.

Priority of invention: 15 February 1966

Certificate No 127. Application No OT-7097

By this discovery the paths of experimental evaluation of the role of quantum effects in biological systems are designated. It can help practice in finding means of effect on pathological processes by the coordination of noises arising in a photon channel of information transmission.

S. M. BARANOV, "The effect of change of structure and properties of alloys."

Formulation of the discovery: Experimentally established was the previously unknown effect of change of the structure and

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

(9)

properties of alloys based on iron, caused by the presence of trace impurities of compounds containing oxygen of the type of silicon monoxide.

Priority of invention: 7 June 1951

Certificate No 124. Application No OT-3717

Established was the identity of processes taking place during the crystallization of solutions of mineral salts in the presence of a surface-active colloidal admixture, and secondary crystallization of iron-based alloys containing an admixture of silicon monoxide. The discovered effect permits creating a new theory connecting the properties of steel and iron-based alloys. Scientific principles of new technological processes have also been elaborated which assure, in combination with rational alloying, obtaining alloys with prescribed properties.

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G. A. ADADUROV, V. I. GOL'DANSKIY, T. N. IGNATOVICH, V. L. TAL'ROZE, P. A. YAMPOL'SKIY, I. M. BARKALOV, A. N. DREMIN, and A. N. MIKHAYLOV. "The effect of formation of polymers in a shock wave."

Formulation of the discovery: Experimentally established was the previously unknown effect consisting in the fact that, as a result of passage of a shock wave through monomers present in a condensed phase polymers are formed, the characteristics of which depend on the amplitude of the shock wave.

Priority of invention: 23 June 1964

Certificate No 125. Application No OT-3848

Investigation of this effect intensifies the understanding of processes taking place behind the front of a shock wave under the specific conditions of instantaneous unilateral immersion of a substance on the front. It substantially expands the area of application of shock waves and their technological use to obtain polymers whose characteristics can be varied by changing the conditions of effect of those waves.

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YE. S. MASHKOVA, V. A MOLCHANOV, D. D. ODITSOV. V. G. TEL'KOVSKIY, AND V. M. CHICHEROV. "The effect of anisotropy of ion-electron emission of single crystals."

Formulation of the discovery: Established was the previously unknown effect of anisotropy of the ion-electron emission of single crystals, consisting in reduction of the number of emitted electrons when the incident ions are directed along the crystallographic axes of the target.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

1/2 022 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--CRYLFORMALDEHYDE TANNING -U-

AUTHOR-(02)-PSHEMENSKAYA, V.A., MIKHAYLOV, A.N.

COUNTRY OF INFO--USSR

SOURCE--KOZh. OBUV. PROM. 1970, 12(3), 36-8

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--FORMALDEHYDE, FREEZING, LEATHER, WEAR RESISTANCE, TANNING MATERIAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1736 STEP NO--UR/0498/70/012/003/0036/0038

CIRC ACCESSION NO--AP0125357
UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

2/2 022 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0125357

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TANNING OF COWHIDES AND SHEEPSKINS WITH HCHO FOLLOWED BY FREEZING (AT MINUS 10DEGREES) RESULTED IN DECREASED LEATHER STRENGTH WHICH, HOWEVER, WAS RESTORED BY TREATING THE LEATHER WITH NH SUB4 HSO SUB3 FOR 30-60 MIN. THE FREEZE TANNED LEATHER SOLES EXHIBITED GOOD WEAR RESISTANCE.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

USSR

UDC 621.315.592

AGAYEV, Ya., MIRGALOVSKAYA, M. S., MIKHAYLOV, A. R., STREL'NIKOVA, I. A., Physicotechnical Institute, Academy of Sciences of the Turkmen SSR

"Electrical Properties of p-Aluminum Antimonide Single Crystals"

Ashkhabad, Izvestiya Akademii Nauk Turkmenskoy SSR, Seriya Fiziko-Tekhnicheskikh, Khimicheskikh i Geologicheskikh Nauk, No 6, 1971, pp 9-14

Abstract: The authors studied the electrical properties of p-aluminum antimonide single crystals grown by the Czochralski method. The material was synthesized and the crystals were pulled in the same installation in a helium atmosphere. The specimens cut from the ingots measured approximately 2-2.5 x 3-4 x 12 mm. Platinum or molybdenum probe-leads were attached by spark-discharge welding. The wire leads were 0.05 mm in diameter. The electrical conductivity and Hall effect were measured by the compensation method, using direct current, at temperatures of 80-1300°K. The carrier (hole) concentration of the specimens was $4.6 \cdot 10^{17}$ - $2 \cdot 10^{18}$/cc. No inversion in the sign of the Hall coefficient was observed throughout the entire temperature range. The width of the forbidden band was found to be 1.61 eV in the region of intrinsic conductivity, and the acceptor level was found to be approximately 0.02 eV in the region of extrinsic conductivity.

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MIKHAYLOV, A.S.

alloys

JPRS 55393

9 March 1972

UDC 539.4:669.295

EFFECT OF CARBON ON THE MECHANICAL PROPERTIES OF TITANIUM BETA-ALLOY WELD JOINTS

[Article by V. B. Vikhman and A. S. Mikhaylov (Leningrad); Moscow, Fizika i Khimiya Obrabotki Materialov, Russian, No 6, November-December 1971, submitted 29 May 1970, signed to press 12 November 1971, pp 48-54]

The limiting permissible carbon content has been established for beta-titanium alloys to be used for weldments. An increase in the crystallization rate of the weld bath due to intensive cooling of the opposite side of the joint by a water shower leads to a significant increase in ductility and impact strength of the seam metal and makes it possible to increase the permissible carbon content in the welded metal.

Titanium-base alloys with a metastable beta-solid solution were developed in the USSR and abroad in the past decade. The best known alloys of this group are domestic alloys VT15 (Ti-3Al-7Mo-11Cr), TS6 (Ti-3Al-4Mo-7V-11Cr) and the American alloy B-120 VCA (Ti-3Al-13V-11 Cr).

All three alloys have similar structure and properties. In the as-supplied condition the sheet material of these alloys has a strength of 80-100 kG/mm^2 and high indices of ductility and impact strength, and after aging at 450-550 C they have the following properties: TS = 120-150 kG/mm^2; elongation = 5-10%, and impact strength = 2-3 kGm/cm^2.

In view of the lower ductility and impact strength of weld joints after aging, in comparison with the base material, the generally accepted technology at the present for making weldments consists of the following operations: 1) shaping the parts which provides thickened edges in the weld zone; 2) heat treatment (aging of the base material); 3) argon-arc welding of the parts along the thickened edges. However, even this technology does not always ensure good workability of the part. The mechanical

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properties of the weldments, primarily ductility and impact strength, depend to a significant degree on the concentration of interstitial impurities (oxygen, nitrogen and carbon) in the base material whereupon the beta-alloys differ from titanium alloys with an alpha- and alpha+beta structure by being more sensitive to the content of these impurities.

The effect of oxygen and nitrogen on the mechanical properties of alloys with a beta-structure was investigated by many authors. On the basis of these works specific contents about the embrittling action of oxygen and nitrogen on the metal of beta-alloy weld joints was fully compiled /1/. At the same time the behavior of carbon in the beta-solid solution of titanium and the effect of this element on the mechanical properties of welds of the investigated alloys has not been really studied and adequately founded recommendations on the limiting content of this harmful impurity in the base metal is lacking.

Technical specifications for alloys VT15 and T36 permit a carbon content up to 0.1% i. e. the same amount as for alloys with an alpha- and alpha-beta structure which contradicts concepts about the structure of the beta-alloy crystal lattice.

The atomic radius of carbon is 1.107 A while the atomic radius of titanium is 1.644 A. Therefore carbon forms interstitial solid solutions with titanium of limited concentration. From the Ti-C phase diagram it follows /2/ that the solubility of carbon in the beta-phase at the melting temperature (1750 C) amounts to 0.5% and decreases to 0.10-0.15% at 920 C while in the alpha-phase, at the same temperature, 0.48% carbon is dissolved. Titanium carbide (sigma-phase) is formed at equilibrium conditions for large carbon concentrations at the same temperature.

The decrease in carbon solubility in the b.c.c.-lattice of the beta-phase in comparison with the hexagonal lattice of the alpha-phase (at 920 C) can be explained by the difference in the dimensions of the crystal pores in which interstitial atoms can be arranged. The crystal lattice of alpha-titanium has two types of pores whereupon the maximum radius of 0.62 A are octahedral pores. The b.c.c. lattice of beta-titanium also has two types of pores (the tetrahedral pores possess a maximum radius of 0.44 A).

The solubility of carbon in beta-alloys is apparently even less than the phase diagram /2/ indicates because the beta-

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USSR

UDC 539.4:669.295

VIKHMAN, V. B., and MIKHAYLOV, A. S., Leningrad

"The Effect of Carbon on the Mechanical Properties of Welded Joints of Veta-Alloys of Titanium"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 6, Nov/Dec 71, pp 48-54

Abstract: The carbon content in beta-alloys of titanium for welded constructions was investigated and its maximum permissible content was experimentally determined by a method using a group TS6 alloy (Ti - 3Al - 4Mo - 7V - 11Cr). In order to define more accurately the effect of C on properties of weld seams, V-strips, 2 x 1 mm, containing a specified quantity of C, were placed in the butt joint between the weldable edges of the plates containing 0.03% of C. The chemical composition of the seam metal and mechanical properties of joints welded with interlay vanadium strips are shown. The use of high cooling rates during the welding process by intensive cooling of the reverse of the joint by water spraying, increases plasticity and resilience of the weld seam and makes it possible to increase the allowable C-content in the material to be welded up to 0.05%. Three illustrations, four tables, seven bibliographic references.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

USSR

UDC 51

MIKHAYLOV, A. V.

"An Algorithm for Solving Integral Linear Programming Problems with Boolean Variables"

V sb. Optimiz. Issled. operatsiy. Bionika (Optimization and Operations Research. Bionics--collection of works), Moscow, Nauka, 1973, pp 85 - 89 (from RZh Matematika No 12, 1973, item No 12 V593)

Translation: A problem of integral linear programming with Boolean variables is considered:

1) $\sum_{i=1}^{n} c_i x_i \rightarrow \max$

2) $\sum_{i=1}^{n} a_{ji} x_i \leq b_j,\ j=1,\ldots,m$

3) $x_i = 0$ or $1,\ i = 1,\ldots,n,$

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

USSR

MIKHAYLOV, A. V., V sb. Optimiz Issled. operatsiy, Bionika, 1973, pp 85-89

An algorithm is suggested for its solution, the plan of which is based on concepts taken from logical algebra. The upper bound on the number of iterations of the algorithm is 2^n: i.e., the algorithm is close to a complete partition. Nine bibliographic citations. Abstract by Yu. Finkel'shteyn

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

MIKHAYLOV, A.V.

mechanical engineering

Figure 1. Block Diagram of Measuring Installation.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

USSR

UDC: 621.391.133

MIKHAYLOV, A. V.

"Experimental Determination of the Gain in Reliability during Correction of the Phase-Frequency Characteristics of Partial Radio Channels for Data Transmission"

Moscow, Radiotekhnika, Vol 26, No 4, 1971, pp 78-82

Abstract: The author determines experimentally gain in reliability accomplished by correcting the phase-frequency characteristics of partial radio channels. The results show that the correction of the phase-frequency characteristics in a partial channel for various operating conditions, various conditions of propagation, and signal/noise ratios decreases the probability of error. The author thanks Professor G. B. Davidov for his advice on formulating the problem and generalizing the results of the experiment. He also expresses gratitude to V. Ye. Bukhviner, G. V. Istomina, and N. V. Bandura for their assistance in conducting the experiment. Original article: seven figures and five bibliographic entries.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

USSR

UDC: 518.5:681.3.06

MIKHAYLOV, A. V., PETROV, G. N.

"Relative Location of Two Geometric Figures in Design of Integrated Circuits"

Sb. nauch. tr. po probl. mikroelektron. Mosk. in-t elektron. tekhn. (Collected Scientific Works on Problems of Microelectronics. Moscow Institute of Electronics Technology), 1971, vyp. 6, pp 213-216 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V975)

Translation: The authors consider an algorithm and a program for solving the problem of relative location of two flat geometric figures at a given distance from each other.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

USSR

UDC 621.391.82

MIKHAYLOV, A. V.

"Optimal Parameters for Real Data Transmission Lines"

Moscow, Elektrosvyaz', No 11, 1970, pp 52-60

Abstract: The author determines the optimal relationships between the transmission band of a channel and the rate of transmission. The optimal parameters of the amplitude-frequency and phase-frequency characteristics are also determined. The author concludes that the responses of two adjacent pulses can be compensated at the moment of response registering in channels with non-ideal amplitude-frequency and phase-frequency characteristics by selecting the optimal relationship between the rate of transmission and the transmission band. The condition for compensating the responses from two adjacent pulses strictly determines the optimal values of $\Delta w \Delta t$ in channels with phase-frequency distortion. Channels with amplitude- and phase-frequency distortion have a response equal to zero at moments lagging behind the $\pm\Delta t$ registering moment for the values of $\Delta w \Delta t$, which can change within a given interval. There is an entire series of optimal values for the amplitude and oscillation period of the nonlinear member of the phase-frequency and amplitude-frequency characteristics for a selected optimal $\Delta w \Delta t$ value. Compensation of the lagging echo-signal occurs at those values. The difference of all adjacent values

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MIKHAYLOV, A. V., Electrosvyaz', No 11, 1970, pp 52-60

of m is practically equal to one for all optimal $\Delta\omega\Delta t$ where m is the number of periods in the transmission band. Original article: two tables, 18 formulas, and four bibliographic entries.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

UDC 621.372.061

USSR

MAKSIMENKOV, A. V., MIKHAYLOV, A. V.

"Finding Paths on a Graph by the Method of Successive Growth of Sides"

Elektron. tekhnika. Nauchno-tekhn. sb. Mikroelektronika (Electronic Engineering. Scientific and Technical Collection of Microelectronics), 1970, vyp. 4 (25), pp 92-97 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4A107)

Translation: One of the problems of finding shortest paths on a graph satisfying defined restrictions is investigated. The given method can be used to solve technological problems in machine design of integrated circuits.

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Acc. Nr.: AM0033057 Ref. Code: 62P0005

Mikhaylov, A. V.

Operating Tolerance and Reliability in Radioelectronic Equipment (Ekspluatatsionnyye dopuski i nadezhnost' v radioelektronnoy apparature) Moscow, Sovetskoye Radio, 1970, 215 pp (SL:1612)

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	IV	Certain Methods for Evaluation and Determination of Operating Tolerances for Output Parameters of Radioelectronic Devices	124
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Reel/Frame 19701430

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

AM0033057

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The book deals with methods for evaluation and determination of tolerances for parameters of radioelectronic equipment...

It was written for engineers working on reliability of readioelectronic equipment during its design and production, as well as during operation.

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19701431

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

USSR UDC: 543.42.062

MIKHAYLOV, B. A.

"Specifics of Quantitative Analysis of Liquids by MNPVO Spectrophotometry"

Optich. i Titrometrich. Analizatory Zhidk. Sred [Optical and Titrometric Analyzers for Liquid Media], Reports of All Union Conference, 1971, Part 1, Tbilisi, 1971, pp 159-162 (translated from Referativnyy Zhurnal Metrologiya i Izmeritel'naya Tekhnika, No 2, 1972, Abstract No 2.32.1105 vy V. S. K.)

Translation: The sources of errors involved in quantitative analysis of liquid media are studied considering the peculiarities of the method of repeated disrupted total internal reflection (MNPVO), in particular the influence of temperature, leakage of cuvettes, changes in polarization of radiation, etc.; the possibilities for compensation are discussed. It is pointed out that the method of MNPVO spectroscopy can be widely used in scientific research laboratories and in industry for creation of liquid medium analyzers for the IR-visible and UV areas of the spectrum. 3 biblio refs.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

USSR UDC: 621.396.961

REUTOV, A. P., MIKHAYLOV, B. A., KONDRATENKOV, G. S., BOYKO, B. V.

"Sidelooking Radar Stations"

Radiolokatsionnyye stantsii bokovogo obzora (cf. English above), Moscow, "Sov. radio", 1970, 360 pp, ill. 1 r. 15 k. (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12G2 K)

Translation: The authors discuss the theory of operation of airborne sidelooking radar stations designed to give detailed radar images of surroundings. Methods are demonstrated for improving radar resolution. Two types of sidelooking radar are examined in detail: with antenna located along the fuselage, and with artificial antenna aperture. A survey is given of information published in the literature relating to the principles of sidelooking radar design and the peculiarities of sidelooking radar mapping. Attention is given to a number of fundamental differences between sidelooking and conventional radar. 170 illustrations, 5 tables, bibliography of 106 titles. Resumé.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

USSR

UDC 621.317.77

MIKHAYLOV, B. K. and SIDOROV, V. V:

"Measuring the Relative Phase Instability of the Meteoric Channel in Frequency and Polarization Separation"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. Sekts. 1 (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses; Section 1--collection of works) "Nauka," 1972, pp 527-530 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10A425)

Translation: Results are given of measurements of the time course for the difference in phase of coherent signals in two receiver antennas with orthogonal polarization. The data obtained may be used in the design of meteor systems using polarization or frequency separation. Four illustrations, bibliography of two.
A. L.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

USSR

UDC 632.95

MIKHAYLOV, B. I., GOLOLOBOV, YU. G., and KOFMAN, L. P.

"A Process for Preparing 2-hydeoxyethylthiol-4,6-diamino-s-triazides"

USSR Author's Certificate No 348564, filed 10 Jul 70, published 8 Sep 72 (from Referativnyy Zhurnal -- Khimiya, No 12(II), 1973, Abstract No 12N524P by T. A. Belyayeva)

Translation: The compounds 2-oxyethylthiol-4,6-RR'N-symtriazine (I) (R, R' = H, an alkyl) were prepared. These are used in the synthesis of insecticides and are prepared by the reaction of 2-X-4,6-RR'N-sym-triazine (II) (X = a halide) with β-oxyethylmercaptides of alkali metals in a solvent. To prepare the products with a high yield, it is desirable to carry out the reaction in a stream of nitrogen. For example, to 10 g $NOCH_2CH_2SNa$ in 40 ml of water is added 20.15 g of (II) (X = Cl, R = H, R' =Et) suspended in 100 ml of ethyl--2-ethoxyethanol. The reacting slurry is allowed to stand at 90° for 4 hours with a stream of nitrogen bubbling through it. It is cooled to 20°, added to 400 ml of water, and allowed to stand for 16 hours. The precipitate is filtered off, resulting in 17.2 g of (I) (R = H, R' =Et), yield of 70%. Its melting point was 85-87°. Other compounds were prepared as follows:

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MIKHAYLOV, B. I., et al., USSR Author's Certificate No 348564, filed 10 Jul 70, published 8 Sep 72

R = Me, R' = Me, % yield = 87%, melting point = 73-75°

R = Et, R' = Et, % yield = 75%, melting point = none given, $n^{20}D$ = 1.5444, d_4^{20} = 1.1395.

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UDC: 542.91+547.244+547.84

USSR

MIKHAYLOV, B. M., VASIL'YEV, L. S., and DMITRIKOV, V. P., Institute of Organic Chemistry imeni N. D. Zelinskiy, Academy of Sciences USSR

"2-Alkyl-Oxaborinanes"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No. 1, Jan 70, pp 198-199

Abstract: New type heterocyclic B compounds, 2-alkyl-oxaborinanes (I) were prepared by hydrolyzing $Br(CH_2)_4B(OMe)R$ (II) with aqueous KOH or $NaHCO_3$. Hydrolyzing II with KOH in MeOH gave derivatives of delta-(methoxy)butylboric acid. I reacted with MeONa in MeOH to give $MeO(CH_2)_4B(OMe)Bu$ (III). In reacted vigorously with PCl_5 to yield 90% of $Cl(CH_2)_4B(Cl)Bu$(IV). The elemental analysis data, bp, d^{20}, and n_d^{20} data were given for IIa, IIb, III, and IV.

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1/2 014 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--ORGANOBORON COMPOUNDS. 197. REACTIONS OF TRIALLYLBORON WITH ALPHA,BETA,UNSATURATED ALDEHYDES -U-

AUTHOR-(03)-TERSARKISYAN, G.S., NIKOLAYEVA, N.A., MIKHAYLOV, B.M.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (4), 876-9

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UNCLASSIFIED

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2/2 014 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0139724

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN EQUIMOLAR MIXT. OF B(CH SUB2 CH:CH SUB2) SUB3 AND RCHO IN ET SUB2 O HELD 0.5-1.5 HR GAVE 65-73PERCENT RCH(OH)CH SUB2 CH"CH SUB2 (R SHOWN: CH SUB2:CH, B SUB15 60-100DEGREES, N PRIME20 SUB0 1.4472; MECH"CH, B SUB15 61-2.50EGREES, 1.4540; PHCH:CH, B SUB0.TIMES025 65-70DEGREES, 1.5450, ME SUB2 C:CHCH SUB2 CH SUB2 CHF:CH, B SUB0.TIMES4 102DEGREES, 1.4800; 2,6,6,TRIMETHYL,2,CYCLOHEXENYL (II), B SUB2 103-4DEGREES, 1.4950; AND 2,6,6,TRIMETHYL,2,CYCLOHEXNYL (II), B SUB2 62-4DEGREES, 1.4880. THIS REACTION WITH ALPHA CYCLOCITRAL IN REFLUXING C SUB6 H SUB6 3 HR, FOLLOWED BY TREATMENT WITH AC2O, H2CH SUB2 CH SUB2 NH SUB2 GAVE 19PERCENT TRIS(4,(2,6,6,TRIMETHYL,2,CYCLOHEXEN,1,YL)BUTEN,1,YL) BORATE B SUB0.TIMES02 222-4DEGREES, 1.5020, AND 24PERCENT II. BETA CYCLOCITRAL IN A SIMILAR REACTION AT ROOM TEMP. 1 DAY GAVE TRIS(4,(2,6,6,TRIMETHYL,1,CYCLOHEXENYL)BUTEN,1,YL) BORATE, B SUB0.TIMES03 235-6DEGREES, 1.5030, ALONG WITH SOME 17PERCENT I. ACROLEIN AND 2(CH SUB2 NEGATIVE,CH:CH SUB2) SUB3 IN ET SUB2 O 1 DAY GAVE 53PERCENT (CH SUB2:CHCH(CH SUB2 CH"CH SUB2)O) SUB2BCH SUB2 CH:CH SUB2, B SUB4 37-9DEGREES, 1.4530. FACILITY: INST. ORG. KHIM. IM. ZELINSKOGO, USSR.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

Acc. Nr: AP0100226 Abstracting Service: CHEMICAL ABST. 5/70 Ref. Code: 4R0062

111545n 2-Alkyl-1,2-oxaborinanes. Mikhailov, B. M.; Vasil'ev, L. S.; Dimitrikov, V. P. (Inst. Org. Khim. im. Zelinskogo, Moscow, USSR). *Izv. Akad. Nauk SSSR, Ser. Khim.* 1970, (1), 198–9 (Russ). Hydrolysis of RB(OMe)$(CH_2)_4$Br with aq. KOH or $NaHCO_3$ gave 2-alkyl-1,2-oxaborinanes with R = Bu (I), b_{10} 50.5–51°, d^{20} 0.8523, n_D^{20} 1.4338, and R = C_6H_{13}, $b_{3.5}$ 61.5–3.5°, 0.8488, 1.4396. However, reaction with KOH in MeOH led to replacement of Br and formation of $MeO(CH_2)_4B$-BuOMe, b_4 89°, 0.8473, 1.4244. Reaction of I with ICl gave $Cl(CH_2)_4BBuCl$, b_2 64–4.5°, 0.9876, 1.4501, and $POCl_3$

G. M. Kosolapoff

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UDC 621.376.223.029.64

USSR

MAKSIMENKOV, P.P., MIKHAYLOV, R.M.

"Magnetoelastic Amplitude Modulator Of Millimeter Waves Based On Antiferromagnetic (Hematite)"

Radiotekhnika i elektronika, Vol XVII, No 6, June 1972, pp 1256-1259

Abstract: An amplitude modulator of microwave radiation of the millimeter band is proposed and is accomplished by the use as a modulating substance of an antiferromagnetic with strong magnetoelastic interaction (hematite, α Fe_2O_3). The advantage of this material over well-known methods is shown for modulation of microwaves in the indicated range. An experimental device for study of modulation characteristics is described and the experimental results are discussed. The author thanks Ya. A Monosov and V.I. Ozogin for consideration of the paper and for helpful council. 4 fig. 7 ref. Received by editors, 16 April 1971.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

USSR UDC: 537.312.62

SAVITSKIY, Ye. M., BARON, V. V., MIKHAYLOV, B. P.

"Producing and Studying Coatings of Nb_3Sn on Substrates of Different Metals and Alloys"

Moscow, Sverkhprovodyashchiye splavy i soyedin.--sbornik (Superconductive Alloys and Compounds--collection of works), "Nauka", 1972, pp 55-59 (from RZh-Radiotekhnika, No 12, Dec 72, abstract No 12D510 [résumé])

Translation: A method is developed for producing uniform coatings with the presence of niobium and Nb_3Sn on substrates of different metals and alloys (copper, molybdenum, steel, etc.). The structure and superconductive properties of the coatings are studied. The temperature of transition to the superconductive state is equal to approximately 17.5-17.8 K. Three illustrations, bibliography of eight titles.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

USSR UDC 669.293.5.6.620.186.537.312.62

SAVITSKIY, Ye. M., BARON, V. V., MIKHAYLOV, B. P.

"Structure and Superconducting Properties of Nb_3Sn-Based Alloys Produced by Substitution of Phases in the Solid-Liquid State"

Probl. Sverkhprovodyashch. Materialov [Problems of Superconducting Materials -- Collection of Works], Moscow, Nauka Press, 1970, pp. 112-119. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 I780 by the authors).

Translation: Substitution of the low-melting phase in Nb-Sn alloys with other superconducting alloys (Pb, Pb-Sb, Pb-Bi) with transition temperatures of from 7.1 to 8.2°K is performed. The influence of structure on the superconducting properties is demonstrated: alloys are produced having significant ductility and capability for plastic deformation. 5 figs, 1 table; 15 biblio refs.

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USSR

UDC 669.293.56.018.28.620.186.537.312.62

SAVITSKIY, Ye. M., BARON, V. V., MIKHAYLOV, B. P.

"Study of Structure and Superconducting Properties of Cast Alloys in the Niobium-Tin System"

Probl. Sverkhprovodyashch. Materialov [Problems of Superconducting Materials -- Collection of Works], Moscow, Nauka Press, 1970, pp. 99-105. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 I779 by the authors).

Translation: Ingots of Nb-Sn alloys are studied. The structure is studied (by macro-and microstructural analysis), as well as the phase composition of the alloys. Color etching is used to reveal the phases. The possibility is established of producing ingots of Nb-Sn alloys with various sizes and geometric shapes with contents of Sn up to 50% with even distribution of components having a transition temperature of 17.5-18.0°K. 3 figs; 1 table; 15 biblio refs.

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USSR

UDC 669.293.018.5.537.312.62

SAVITSKIY, Ye. M., MIKHAYLOV, B. P., BARON, V. V.

"Electrolytic Coating of Complex Shape Parts With Niobium"

Probl. Sverkhprovodyashch. Materialov [Problems of Superconducting Materials -- Collection of Works], Moscow, Nauka Press, 1970, pp. 203-208. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 I777 by the authors).

Translation: A method is developed for electrolytic deposition of even superconducting Nb coatings on parts of a nonsuperconducting material (Cu, brass, Fe) of various sizes and shapes. The influence of electrolysis modes on the structure, evenness, thickness, purity and superconducting parameters of the Nb coatings is studied. The possibility of electrodeposition of even-thickness superconducting Nb coatings (on parts of various sizes and shapes) with a transition temperature of about 8.9-9.0°K is established. 4 figs; 4 biblio refs.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

USSR UDC: 537.312.62

SAVITSKIY, Ye. M., MIKHAYLOV, B. P., BARON, V. V.

"Electrolytic Niobium Plating of Articles With a Complex Shape"

V sb. Probl. sverkhprovodyashch. materialov (Problems of Superconducting Materials--collection of works), Moscow, "Nauka", 1970, pp 203-208 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D544)

Translation: A method is developed for electrolytic deposition of superconductive coatings of niobium on articles of nonsuperconducting material (copper, brass, iron) of various sizes and shapes. A study is made of the effect which conditions of electrolysis have on the structure, uniformity, thickness, purity and superconducting parameters of the niobium coating. It is found that uniformly thick niobium superconducting coatings can be electrolytically deposited (on articles of various sizes and configurations) with a temperature of transition to the superconducting state of about 8.9-9.0°K. Four illustrations, bibliography of ten titles.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

USSR UDC: 537.312.62

SAVITSKIY, Ye. M., MIKHAYLOV, B. P., BARON, V. V.

"Structure and Superconducting Properties of Alloys Based on the Compound Nb_3Sn Made by the Method of Phase Substitution in the Solid-Liquid State"

V sb. Probl. sverkhprovodyashch. materialov (Problems of Superconducting Materials--collection of works), Moscow, "Nauka", 1970, pp 112-119 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D545)

Translation: It is shown that the low-melting phase in Nb-Sn alloys can be replaced by other superconducting alloys (Pb, Pb-Sb, Pb-Bi) which have a temperature of transition to the superconducting state from 7.1 to 8.2°K. It is shown how structure affects superconducting properties; alloys are produced which have appreciable ductility and the capacity for plastic deformation. It is found that the method of substituting the low-melting component can be used for alloys of any systems consisting of high-melting and low-melting phases which have the necessary crystallization temperature interval. Five illustrations, one table, bibliography of fifteen titles. Resumé.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

USSR UDC: 537.312.62

SAVITSKIY, Ye. M., BARON, V. V., MIKHAYLOV, B. P.

"Investigation of the Structure and Superconducting Properties of Cast Alloys of the Niobium-Tin System"

V sb. Probl. sverkhprovodyashch. materialov (Problems of Superconducting Materials--collection of works), Moscow, "Nauka", 1970, pp 99-105 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D559)

Translation: An investigation is made of the possibility of making niobium--tin alloy ingots by the method of high-frequency melting in a graphite crucible in an inert atmosphere. A study is made of the structure of the alloys (by the methods of macro and microstructural analysis) and the phase composition of the alloys. Color etching is developed to reveal phases. It is found that niobium-tin alloy ingots of various sizes and geometric shapes can be produced with a tin concentration of up to 50 percent by weight with fairly uniform distribution of the components, and with a temperature of transition to the superconducting state of 17.5-18.0°K. Three illustrations, one table, bibliography of fifteen titles. Resumé.

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USSR

UDC 669.293+537.312.62

SAVITSKIY, Ye. M., BARON, V. V., and MIKHAYLOV, B. P.

"Study of Structure and Superconducting Properties of Cast Alloys in the Niobium-Tin System"

Problemy Sverkhprovodyashchikh Materialov [Problems of Superconducting Materials -- Collection of Works], Moscow, Nauka Press, 1970, pp 99-105

Translation: The possibility is studied of producing ingots of niobium-tin alloy by high frequency melting in a graphite crucible in an inert atmosphere. The structure of the alloys (by macro- and microstructural analysis) and phase composition of alloys are studied; a color etching method is developed for phase determination.

The possibility is established of producing ingots of niobium-tin alloy of various sizes and geometric shapes with tin contents of up to 50 wt.% with even distribution of components and a transition temperature to the superconducting state of 17.5-18.0°K.

3 figures; 1 table; 15 biblio. refs.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

USSR

UDC 543.251+668.293.+537.312.62

SAVITSKIY, Ye. M., MIKHAYLOV, B. P., and BARON, V. V.

"Electrolytic Niobium Coating of Complex-Shape Parts"

Problemy Sverkhprovodyashchikh Materialov [Problems of Superconducting Materials — Collection of Works], Moscow, Nauka Press, 1970, pages 203-208

Translation: A method is developed for electrolytic deposition of even superconducting niobium coatings on parts of non-superconducting materials (copper, brass, iron) of various shapes and sizes.

The influence of electrolysis modes on the structure, evenness, thickness, purity, and superconducting parameters of the niobium coating is studied.

The possibility is established of electro deposition of even superconducting coatings of niobium (on parts of various shapes and sizes) with a transition temperature of 8.9-9.0°K.

4 figures; 10 biblio. refs.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

UDC 533.652/.661.013

USSR

MIKHAYLOV, F. A., VIKTOROV, B. V., POKHVALENSKIY, V. L.

"Invariant Adaptive System for Longitudinal Stabilization of Aircraft"

V sb. Teoriya invariantn. i teoriya chuvsvit. avtomat. sistem. Ch. 1 (The Theory of Invariance and the Theory of the Sensitivity of Automatic Systems. Part 1 -- Collection of Works), Kiev, 1971, pp 320-335 (from RZh-Mekhanika, No 9, Sep 71, Abstract No 9B279)

Translation: The possibility of constructing an autopilot on the principle of compensation of perturbing effects which would maintain with high accuracy a constant angle of pitch of the aircraft under the action of vertical gusts of wind is discussed. Since an aircraft statistically neutral with respect to the angle of attack cannot undergo angular accelerations with changes in the angle of attack under the action of gusts, this problem is solved by imitation of such neutrality through the control system. It is assumed that a signal is supplied to the input of the autopilot drive, the components of which are proportional to the angle of pitch, the angular rate of pitch and acceleration with respect to the vertical axis of the aircraft. In total the system takes on invariance with respect to the angle of pitch to the action of a vertical wind under the condition

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USSR

MIKHAYLOV, F. A., et al, Teoriya invariantn. i teoriya chuvsvit. avtomat. sistem. Ch.1, Kiev, 1971, pp 320-335

of continuous tuning of the coefficient for a vertical acceleration signal which must be achieved with adaption chains. Two possible designs of the adaption chain are discussed and the effect of a continuous change of the parameters of this chain on the accuracy of maintaining the angle of pitch is evaluated. Also evaluated are the effects of the drive parameters and the presence of additional components in the structure of the accelerometer signal when it is not installed at the center of gravity of the aircraft. Modeling of both adaption designs showed their suitability for application. However, in those cases when the dynamics of the adaption chain were insufficiently "slow" as compared with the dynamics of the basic circuit, autooscillations were observed in the modeling. G. S. Aronin.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

UDC 629.78.017.2

USSR

MIKHAYLOV, F. A., TYKHEVICH, O. F., and KHADZHINOV, M. K.

"Calculation of the Characteristics of Different Structural Combinations of Linear Transitional Systems"

Tr. Mosk. Aviats. In-ta (Works of the Moscow Aviation Institute), No 240, 1972, pp 116-122 (from Referativnyy Zhurnal--Raketostroyeniye, No 5, May 73, Abstract No 5.141.143 by the authors)

Abstract: As is known, the transfer function of a linear transitional system is the natural expansion of the concept of the transfer function of a steady system, but in contrast to a steady system a transitional system generally cannot be obtained with the aid of a finite number of operations on the coefficient of dynamics equations. Methods of finding transfer functions of different structural combinations (except parallel), done for steady systems, cannot be used for transitional system. This article was devoted to the problem of finding approximate analytical expressions of transfer functions for different combinations of linear transitional systems. It is assumed that the given and sought for transfer functions can be approximately expressed in the form:

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UDC 629.78.017.2

MIKHAYLOV, F. A., et al., Tr. Mosk. Aviats. In-ta, No 240, 1972, pp 116-122

$$W_1(s,t) = \frac{s_{1,0}(t)s^{q-1} + \ldots + c_{1q-1}(t)}{s^q + d_{1,1}(t)s^{q-1} + \ldots + d_{1q}(t)}$$

where i--index of chain or combination; c_{ij}, j = 0..., q-1, d_{ij}, j = 1,...,

q--real coefficients, s--complex variable. The problem is reduced to finding formulas which express the coefficients of transfer coefficients of combinations through the coefficients of transfer functions for chains. Since solution of this problem depends on the proposed degree of the polynomial of the transfer function denominator, then it is necessary to assign the indicated degree to obtain a single-value solution. The variant of solution is examined for the case when the polynomial degree of the transfer function denominator of a combination is determined via the polynomial degree of transfer function denominators of chains by the same rules which pertain to the theory of steady systems. 1 figure, 1 bibliographic reference.

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UDC: 53:

MIKHAYLOV, F. A.

"Analysis of Free Oscillations in Nonstationary Linear Systems, Based on Canonical Transformations of the Equation for Free Oscillations"

Tr. Mosk. aviats. in-ta (Transactions of the Moscow Aviation Institute) 1970, No. 189, pp 5-32 (from RZh-Mekhanika, No. 2, Feb 71, Abstract No. 2A136)

Translation: Formulations are made of the basic positive methods for analyzing free oscillations in nonstationary linear systems, several variants for which are presented in the author's works. The method is based on the use of the linear proposition

$$x = z_1 + \ldots + z_n$$

$$\ldots\ldots\ldots$$

$$dx/dt = \zeta_1 z_1 + \ldots + \zeta_n z_n$$

$$d^{n-1}x/dt^{n-1} = \int(\zeta_1 + p)^{n-2}\zeta_1 \int z_1 + \ldots + \int(\zeta_n + p)^{n-2}\zeta_n \int z_n,$$

1/2 where p is the differentiation symbol, $\zeta_1 = \zeta(t), \ldots, \zeta_n = \zeta_n(t)$

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MIKHAYLOV, F.A., Tr. Mosk. aviats. in-ta 1970, No 189, pp 5-32 (from RZh-Mekhanika, No 2, Feb 71, Abstract No 2A136)

are complex functions of t, limited together with their derivatives up to the (n-1)-th inclusive, at those points of the interval at which the oscillations are considered; $(\zeta_i + p)^k$ is an operator, in the sense of a k-multiple use of the operator $\zeta_1 + p$, for a linear differentiated equation of the n-th order with variable coefficients. The results of the investigations of the transformed system are

$$\dot{z}_i = \zeta_i z_i + \sum_j^n h_{ij} z_j \qquad (i = 1, \ldots, n)$$

where

$$h_{ij} = -[(\zeta_j + p)^{n-1}\zeta_j + b_1(\zeta_j + p)^{n-2}\zeta_j + \ldots + b_{n-1}\zeta_j + b_n]w_{ni}/W.$$

W is the determinant of a matrix of the coefficients in the right-hand part of the system, w_{ni} is an algebraic addition to the element in the n-th line, i-th column of W, and refers to the original equation. V. ... Kuz'ma

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UDC 612.273.519.05

USSR

MIKHAYLOV, G. A.

"The Effects of Hypoxia on the Metabolism of Amino Acids Associated With the Kreba Cycle in the Brain and Liver"

Leningrad, Vestnik Leningradskogo Universiteta, No 21, Vyp 4, Nov 71, pp 94-101

Abstract: A 30-minute exposure of rats to hypoxia (180 mm Hg total air pressure, equivalent to an altitude of 10,5000 m) inhibits the oxidation of pyruvate and alpha-ketoglutarate in the brain and liver, increases alanine concetration in these organs, and causes an accumulation of C^{14} (from tagged acetate injected subcutaneously) in alanine. The metabolic rate of glutamine in the brain does not change. However, radioactivity of glutamate and aspartate in the brain and liver, radioactivity of GABA in the brain, and radioactivity of glutamine in the liver decrease. The most striking reduction occurs in the concentration of brain aspartate and liver glutamate, indicating that these amino acids are oxidized at a high rate under hypoxic conditions. After a 30-minute recovery period in normal atmosphere, the concentration and radioactivity of these keto and amino acids return essentially to normal values.

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MATHEMATICS

Differential and Integral Equations

UDC 518

USSR

MIKHAYLOV, G. A., Computer Center of the Siberian Department of the Academy of Sciences USSR

"On Combining the Finite Sum Method and the Monte Carlo Method to Solve Second-Order Integral Equations"

Moscow, Matematicheskiye Zametki, No 4, Apr 71, pp 425-434

Abstract: One method for combining Monte Carlo methods with algebraic methods for evaluating linear functions from the solution of a second-order integral equation is studied. It is shown that the effectiveness of the Monte Carlo method relative to an estimate of the solution by a histogram of the algebraic method is determined by a function of the time for modeling one trajectory on a computer and that in the modeling of one trajectory the approximate piecewise constant solution of the given equation deviates from the exact solution by a quantity of a given order. The author applies a method to calculate a problem in the theory of particle transport concerning the probability of the passage of a particle through a plane layer $0 \leq z \leq 20$ of material with the following characteristics: the mean free path length is equal to 1, the scattering is isotropic and does not change the energy of the particles, and

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MIKHAYLOV, G. A., Matematicheskiye zametki, No 4, Apr 71, pp 425-434

the probability of survival of a particle under collision is $q = 0.8$. The results of a calculation on the BESM-6 computer are given. It is noted that problems of transport theory can be solved by the Monte Carlo method with matrix transformation of the weight vector in the single-group approximation, when particle energy is discrete and the transport process can be described by a system of equations.

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USSR

UDC: 681.325.65

KOCHUR, A. P., VOYTOVICH, I. D., MIKHAYLOV, G. A.

"Cryotron Logic NOR Element"

USSR Authors' Certificate No 248766, Filed 15 February 1968, Published 22 January 1970 (Translated from Reverativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 10, 1970, Abstract No 10B100P, by N. V.)

Translation: The element suggested contains a superconducting circuit with an input cryotron for each input, output and regulating cryotrons. It differs from known circuits in that the superconducting circuit contains two branches. One branch consists of the series-connected input cryotron tubes, while the other consists of the series-connected grids of the output cryotron and tube of the control cryotron. One output of the grid of this latter cryotron is connected to the cycling voltage supply; the other, to the point of connection of the two branches of the circuit. This assures functional compatibility with similar elements and decreases power consumption. Two illustrations.

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USSR

UDC 621.373.826:621.396

ZEGE, B. P., IVANOV, A. P., KATSEV, I. L., KARGIN, B. A., KUZNETSOV, S. V., and MIKHAYLOV, G. A.

"Some Problems of Optical Pulse Radar in Natural Dispersing Formations"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses--collection of works) "Nauka," 1972, pp 337-341 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10D440)

Translation: A method is given for computing the signal/noise ratio of an optical radar system combining receiver and transmitter, under the condition that the signal is propagated in a medium characterized by the probability Λ of photon survival. With increasing distance between the object and the transceiver, the signal/noise ratio varies according to the law

$$\eta \sim \sqrt{\tau} \exp -(+\gamma - 1 + \Lambda)\tau ,$$

where τ is the distance between the object and the radar and γ is the eigenvalue of the characteristic equation. Bibliography of five. A. L.

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USSR UDC: 532

SHUSHPANOV, P. I., ZAKHAVAYEVA, N. N., MIKHAYLOV, G. D., KONOVALOV, A. I.

"Effect of Ultrasound on Water in Fine Quartz Capillaries"

V sb. Primeneniye ul'traakust. k issled. veshchestva (Application of Ultraacoustics to the Study of Matter--collection of works), vyp. 25, Moscow, 1971, pp 335-339 (from RZh-Fizika, No 6, Jun 72, Abstract No 6Ye96)

Translation: The authors investigated crystallization and melting of water in capillaries ~10^{-4} cm in diameter. It was found in microscope studies that dark spots randomly distributed throughout the entire column of water appear in the premelting region. These spots disappear completely by the time the ice has completely melted. Ultrasonic exposure of water-filled capillaries led to the appearance of dark lines periodically spaced perpendicular to the axis of the capillary instead of the chaotically spaced points. These lines constitute a pattern of standing waves. Two series of normal modes were observed which form doublet and triple configurations when superimposed. This effect is explained within the framework of the theory of longitudinal oscillations of tubes and rods. Ultrasonic exposure was done on various frequencies in the 0.2-1.2 MHz range. The intensity of

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SHUSHPANOV, P. I. et al., Primeneniye ul'traakust. k issled. veshchestva, vyp. 25, Moscow, 1971, pp 335-339

the ultrasound was 0.5-2 w/cm^2. The maximum value of energy density leading to destruction of the ice lattice was $w_{max} \approx 9 \cdot 10^9$ ergs/cc. Corresponding to this value of w_{max} is the Poisson ratio $\mu = -1$, which coincides with μ for steel and glass. N. P. Pokrovskiy.

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Epidemiology

USSR

ZHUMATOV, Kh., Zh., MIKHAYLOV, G. G., and ABENOVA, U. A., Kazakh Institute of Epidemiology and Microbiology

"Virological Study of Hong Kong Flu in Kazakhstan"

Alma-Ata, Zdravookhraneniye Kazakhstana, No 2, Feb 71, pp 50-52

Abstract: A program for monitoring acute respiratory diseases during the course of the year exists in Kazakhstan. It was found that the incidence of all respiratory diseases is higher among children during as well as between flu epidemics. In January 1968, there was a peak in respiratory disease among children, caused by the spread of parainfluenenna virus and adenoviruses. There was another peak in March/April. This time, A_2 virus was isolated. Thus, two outbreaks of respiratory disease within 3-4 months were observed and they were caused by different respiratory viruses. A more serious outbreak of Hong-Kong flu occurred at the end of 1968 and the beginning of 1969. An even more severe epidemic was recorded in January 1970. Hemagglutination inhibition data were recorded for the 1968-1970 period and the elution activity of strains of A_2 flu virus was recorded. Four groups of A_2 virus strains were found. It is recommended that local public health stations in various regions should cooperate in analysis and study of A_2 virus strains, so that

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ZHUMATOV, Kh., et al, Zaravookhraneniye Kazakhstana, No 2, Feb 71, pp 50-52

a modern medical network can be set up to deal efficiently with future outbreaks of Hong Kong flu in Kazakhstan.

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USSR

MIKHAYLOV, G. S.

"Dynamic Elastic-Plastic Behavior of a Spherical Envelope with Intensive Heating"

Uch. zap. Gor'kov. Un-t. [Scientific Writings of Gor'kiy University], No 134, 1971, pp 117-124, (Translated from Referativnyy Zhurnal, Mekhanika, No 4, 1972, Abstract No 4 V618 by Yu. V. Suvorova).

Translation: A numerical method is used to study the dynamic elastic-plastic behavior of thin spherical envelopes with intensive heating. The physical relationships are based on the incremental theory of thermoplasticity with isotropic and kinematic (linear) hardening. The Mises condition is used to determine the flow surface. It is considered that the yield point is independent of loading velocity. Integration of the equation system produced was performed by the Runge-Kutta method on the BESM-4 computer. The elastic-plastic behavior of spherical envelopes of AMG-3 alloy with midsurface radii R_1 and $R_2 = 2R_1$ at various loading velocities and various temperature levels. Graphs are presented of the change in temperature at various loading rates, as well as the change of the ratio of dynamic bending to static bending with time and the stress level for various heating rates and various maximum temperatures.

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USSR UDC: 538.4

KLEMENTOV, A. D., MIKHAYLOV, G. V., NIKOLAYEV, F. A., ROTANOV, V. E., SVIRIDENKO, Yu. P.

"High-Current Pulse Discharge in Lithium"

V sb. Vopr. fiz. nizkotemperaturn. plazmy (Problems in the Physics of Low-Temperature Plasma--collection of works), Minsk, "Nauka i tekhn.", 1970, pp 269-275 (from RZh-Mekhanika, No 4, Apr 71, Abstract No 4352)

Translation: The authors report on a study of a high-power pulse source of light produced by an electric discharge in a lithium plasma as the working medium. A cylindrical chamber with quartz walls was used with an inside diameter of approximately 90 mm, the distance between the steel hemispherical electrodes being 145 mm. The chamber was evacuated to a pressure of 10^{-5} mm Hg. The lithium wire was 0.1 mm in diameter. The discharge developed in lithium vapor formed by an electric explosion. The discharge was fed from two condenser banks -- a main bank and an auxiliary bank with energy capacities of 22 and 4.5 kJ respectively. The pulse from the auxiliary bank was delayed by 25 μs relative to the beginning of

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USSR

KLEMENTOV, A. D., Vopr. fiz. nizkotemperaturn. plazmy, Minsk, "Nauka i tekhn.", 1970, pp 269-275

the discharge from the main bank. The duration of the first half-cycle of the current discharge from the main bank was 75 μs with a corresponding figure of 15 μs for the auxiliary bank. The current and voltage of the discharge were determined by a Rogowski loop and a voltage divider. The dynamic process of development of the discharge filament was recorded by the SFR instrument operating in the single-frame mode at a rate of 10^6 frames per second. Emission from the central zone of the discharge was registered by a spectrograph with time scanning and in the integrated exposure mode.

It was found that the discharge develops only in the exploding wire vapors. The discharge filament expanded at a nearly constant rate of approximately 1.3 km/s, reaching the walls of the chamber about 50 μs after beginning of the current pulse. Brightness distribution through the discharge filament is nonuniform,, which is due to localized non-uniformities of density and temperature. Discharge emission consists of an intense continuous spectrum which carries the main part of the energy, and superimposed complex line emission, which is analyzed. It is found that maximum brightness temperature in the 250 nm region is 17,000°K. Emission during the second half-cycle of the current is considerably weaker than the

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USSR

KLEMENTOV, A. D. et al., Vopr. fiz. nizkotemperaturn. plazmy, Minsk, "Nauka i tekhn.", 1970, pp 269-275

brightness temperature is 12,000°K. The spectral brightness distribution in the maximum current pulse (300 kA) is not described by the curve for black-body radiation of a definite temperature. A comparison of the luminous characteristics of a discharge in lithium and xenon tubes shows that with respect to the overall emission output, the lithium discharge is equivalent to the most powerful pulse tubes, and considerably surpasses these tubes with respect to brightness characteristics in the visible, and especially in the ultraviolet, spectral regions. O. K. Rozenov.

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UDC 669.245.018.44(088.8)

USSR

PANASYUK, I. O., BRUSILOVSKIY, B. S., VILKOV, V. I., VORONIN, G. M., YEGOROV, YE. YE., YELKIN, I. S., KLIKOV, L. YA., KOVROVA, YE. N., KONTSEVAYA, YE. M., LYUBINSKAYA, M. A., MILENINA, YE. G., MIKHAYLOV, I. A., NAZUMAYEV, YE. I., SIROTKIN, A. I., SOLDATCHENKO, V. A., SPILITSIN, R. I., SHAPIRO, S. M.

"Nickel-Chromium Base Alloy"

USSR Author's Certificate No 276418, Filed 2 Jun 69, Published 16 Oct 70 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4I766P)

Translation: The heat-resistant alloy has the following composition (in %): C 0.03-0.1, Cr 30-40, W 3-5.5, Mo 2-4, Ti 0.5-1.5, Al 0.5-1.5, Nb 0.5-1.5, Ce 0.01-0.3, B 0.003-0.008, Ni, the rest. The alloy has increased heat resistance and also the following mechanical and physical-chemical properties at 1,100°: σ_B 8 kg/mm^2, δ 65%, $\sigma_{\text{stress-rupture}}$ 1 kg/mm^2, coefficient of linear expansion $15 \cdot 10^{-6}$ deg^{-1}, increase in weight after 100 hours of heating at 1,200° in the air 0.6 g/m^2. It is corrosion-resistant in a moist atmosphere under tropical conditions, in sea water, and in the products of combustion of highly sulfurous fuel.

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UNCLASSIFIED PROCESSING DATE--13NOV70

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TITLE--DEASPHALTIZATION OF ACID SLUDGE -U-

AUTHOR-(05)-MIKHAYLOV, I.A., LEVINSON, S.Z., OROCHKO, D.I., IZOTOVA, P.P., TIMOFEYEVA, K.M.

COUNTRY OF INFO--USSR

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REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,

DATE PUBLISHED--01APR70

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TOPIC TAGS--CHEMICAL PATENT, ADSORPTION, PETROLEUM DEASPHALTING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UR/0482/70/000/000/0000/0000

PROXY REEL/FRAME--3005/0890

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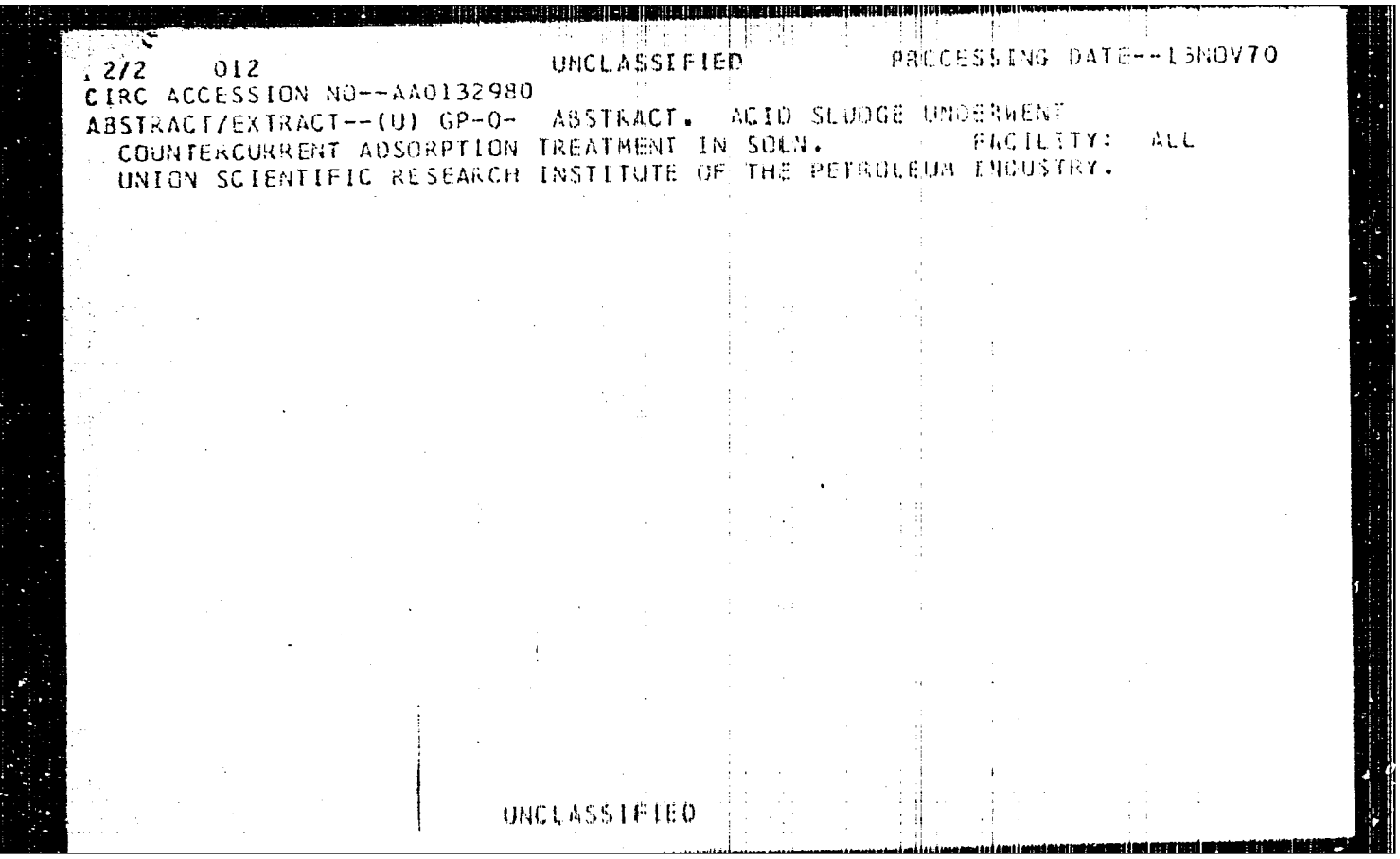

2/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AA0132980
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ACID SLUDGE UNDERWENT COUNTERCURRENT ADSORPTION TREATMENT IN SOLN. FACILITY: ALL UNION SCIENTIFIC RESEARCH INSTITUTE OF THE PETROLEUM INDUSTRY.

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USSR

MERKULOV, Ye. I., VANNIKOV, A. V., MIKHAYLOV, I. D.

"Investigation of Hole Mobility in Polydiphenylacetylene Films"

Leningrad, Fizika Tverdogo Tela, Vol 13, No 9, Sep 71, pp 2679-2682

Abstract: The authors study the drift mobility of holes in films of polydiphenylacetylene precipitated from a benzene solution and in films of modified polydiphenylacetylene made by repeated high-temperature sublimation (up to 500°C) of polydiphenylacetylene on a heated (to 250°C) substrate with gold or aluminum electrode at a pressure of 10^{-5} mm Hg. The specimens were made in the form of sandwich cells. Film thickness was 1-10 μ, and the working area of the electrode was 0.1 cm^2. Mobility was determined by measuring the transit time T_t of nonequilibrium carriers excited by a low-energy (3-10 keV) electron pulse with a duration of 0.2-1 μs. To prevent secondary effects, the time constant of the specimen was chosen to keep the resistance and capacitance greater than T_t. It is shown that the low mobility of charge carriers in polydiphenylacetylene ($2 \cdot 10^{-4}$ $cm^2/V \cdot s$) is due to the presence of a large number of small traps.

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USSR

MERKULOV, Ye. I. et al., Fizika Tverdogo Tela, Vol 13, No 9, Sep 71, pp 2679-2682

The mobility in sublimated polydiphenylacetylene, where there is an appreciable reduction in the number of traps, is 0.3 $cm^2/V \cdot s$. It is shown that the band concept can be applied to study of the motion of charge carriers in organic polymer semiconductors. Two figures, bibliography of five titles.

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USSR

UDC 576.851.49(SHIGELLA).07.21

MIKHAYLOV, I. F., and YUDITSKAYA, N. M., Central Scientific Research Institute of Epidemiology, Ministry of Health USSR, Moscow

"Invasion Suppression of Virulent Strains of Shigella flexneri by Avirulent Strains"

Moscow, Zhurnal Mikrobiologii Epidemiologii i Immunobiologii, No 11, 1972, pp 54-57

Abstract: Infection of guinea pigs (eyes) with virulent and avirulent strains 1605, 1195 and 1605 3R, 1195 R_1, respectively) in a concentration of 10^6 microbial cells did not result in eye infection. The invasion of virulent cells was suppressed by avirulent cells. Higher doses of virulent strains mixed with avirulent did not result in invasion suppression. Microscopic examination of corneal epithelium revealed the presence of bacteria when only virulent cells were used, no infection when virulent and avirulent strains were used (1:), and only individual bacteria in the epithelium when the ratio of virulent and avirulent strains was 10:1. Experiments to explain the suppression mechanism of avirulent cells were unsuccessful but it was clearly established that it did not depend on the antagonistic interrelations between both strains. Further studies are needed to discover the suppression mechanism of avirulent strains.

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PHYSICS
Acoustics

UDC 534-8

USSR

KOL'TSOVA, I. S., MIKHAYLOV, I. G., and SABUROV, B., Physical-Technical Institute imeni S. U. Umarov, Tadzhik SSR Academy of Sciences, and Leningrad State University imeni A. A. Zhdanov, presented by academician A. A. Adkhamov of the Tadzhik SSR Academy of Sciences

"The Propagation of Ultrasonic Waves in Natural Oil Emulsions"

Dushanbe, Doklady Akademii Nauk Tadzhikskoy SSR, Vol 16, No 8, 1973, pp 28-32

Abstract: Various authors have developed mathematical expressions for the coefficients of absorption of acoustic energy in a dispersion taking into account losses due to difference in viscosity between the two liquids, differing thermal properties, etc. This article reports experimental studies of the relationship between the coefficient of additional absorption and frequency for emulsions of olive oil, linseed oil, and castor oil stabilized by a 0.5% solution of gelatin for the purpose of clarifying the role of the different absorption mechanisms.

The drops of linseed oil had an average diameter of 4 microns; of the other two oils, 8 microns. Emulsions of 1 - 10% by volume at temperatures of 5 - 30°C were tested at frequencies of 3 - 27 Mc. Absorption was found to be a linear function of concentration in all cases. Within the 8% error of

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KOL'TSOVA, I. S., et al., Doklady Akademii Nauk Tadzhikskoy SSR, Vol 16, No 8, 1973, pp 28-32

measurement, changes in temperatures did not affect the relationship between absorption and frequency.

At frequencies below 25 Mc, the experimental results agree with the theory, but above this frequency there is a divergence, probably due to the use of average values for droplet diameter in the calculations. It is not possible to draw a completely unambiguous conclusion as to dominant mechanisms without additional calculation of energy balances. Making these calculations, one finds that sound absorption in these emulsions apparently is due primarily to heat transfer between the particles in the dispersion medium at frequencies up to 15 Mc, and that at higher frequencies a significant role begins to be played by scattered waves, depending on the shear and volume viscosities of the dispersant and the medium.

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UDC 666.97.035.51

USSR

BUBEN, E. M., Engineer, and MIKHAYLOV, I. G., Engineer

"Circular Conveyer for the Production of Objects From Hot Concrete Mixtures"

Moscow, Beton i Zhelezobeton, No 10, Oct 72, pp 30-31

Abstract: Results are reported on introduction of the circular conveyer technology for the production of reinforced concrete objects, as staircase flights, platforms, balcony plates, in thermoforms with preliminary electric heat-up of the concrete mixture and thermoforming of the objects. The described technology was introduced at the ZhBK-21 Factory of Reinforced Concrete Structures of the Dneprozhelezobeton Combine in Dnepropetrovsk. The technical characteristics of a conveyer with an yearly output of 4000 m^3 are indicated and its operation is discussed. The technological design features of the conveyer make it possible to apply a repeated vibration of objects formed from hot mixtures; this provides, in combination with addition of 2% calcium chloride, an increase of concrete strength by 15-20% and a considerable time reduction in the additional thermal treatment of the objects. Applying the methods of preliminary electric heat-up of concrete mixture and hot forming of objects in combination with the specific production technology,

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USSR

BUBEN, E. M. and MIKHAYLOV, I. G., Beton i Zhelezobeton, No 10, Oct 72, pp 30-31

the efficiency of labor could be increased by 20%, at the same time lowering the net cost of the production by 15-20%. Three illustrations, one table.

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UDC 534.22-14

USSR

MIKHAYLOV, I. G., POLUNIN, V. M., Leningrad State University

"Ultrasonic Velocity in Certain Liquids as a Function of Various Parameters of State"

Moscow, Akusticheskiy Zhurnal, Vol XVIII, No 1, 1972, pp 68-73

Abstract: Results are presented from measuring ultrasonic velocity as a function of various physical conditions (p = const, t = const, ρ = const) in three liquids: GOST 682454 glycerine (containing 0.02% water with a melting point t_{melt} = -25°) and the polymethylsiloxanes PMS-400 (mean molecular weight 9,500, t_{melt} = -60°) and PMS-5 mean molecular weight 640, t_{melt} = -60°). The shear viscosity and density of these liquids as functions of the temperature and pressure are also presented. On the basis of the hole model theory, these data were used to calculate the speed of sound in these liquids and its dependence on the temperature and pressure. The experimental data and calculated results exhibit satisfactory qualitative agreement.

The measurements show that when the initial pressure exceeds ~10 technical atmospheres, the function c(t) has an approximately negative nature where dc/dt > 0. Hole theory gives a qualitatively correct analytical expression for the speed of sound suitable for describing such liquids as PMS-400, PMS-5

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USSR

MIKHAYLOV, I. G., et al., Akusticheskiy Zhurnal, Vol XVIII, No 1, 1972, pp 68-73

and glycerine. The behavior of glycerine is described worse than the behavior of the other two liquids as a result of the specific nature of the structure of strongly polar tightly packed liquids not considered by hole theory. The calculations also indicate the suitability of Boltzman distribution for estimating the number of holes in these liquids.

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UDC 534.22

USSR

ANDREYEV, V. P., and MIKHAYLOV, I. G.

"Approximate Calculations of Diffraction Corrections for a Wedge-shaped Radiator"

Leningrad, Vestnik Leningradskogo Universiteta, Seriya Fizika i Khimiya, No 1, Feb 71, pp 146-153

Abstract: The article considers a rectangular platform vibrating as a flat piston in an infinite screen. The distribution of the amplitudes of vibration velocities is taken as uniform on the piston and equal to zero in the screen. The medium in which acoustic waves propagate is assumed to be unlimited and possesses zero absorption. A formula is obtained for determining the mean pressure on a receiving transducer. This formula is suitable for calculating zero diffraction corrections for a wedge both for velocity and for absorption. Results are given for numerical calculations of mean pressure as a function of generalized distance. The article includes a table giving the results of diffraction correction calculations for a rectangular radiator.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

UDC 534.2

USSR

ANDREYEV, V. P., MIKHAYLOV, I. G.

"Calculation of Diffraction Corrections for Ultrasonic Rectangular Emitters in a Rigid Screen"

Leningrad, Vestnik Leningradskogo Universiteta, No. 4, Nov 70, pp 48-56

Abstract: The increased results in measuring absorption of ultrasound when the dimensions of the converter become comparable to the wavelength are discussed. This is explained by the fact that the nearer field of the acoustical emitter has a complex structure due to diffraction. The corrections for diffraction that must be made in experimental data to account for distortion in the field to obtain correct values of the absorption are calculated. Tables are given showing the values of the relative pressure on the receiving transducer as a function of the generalized distance $s = z\lambda/a^2$, where a is the length of a side of the square and z is the distance between converters. The calculations were carried out on a BESM-4 computer. Integrals over the interval [0, 1] were calculated by Simpson's rule with automatic selection of the step. The tables were compiled for sets of parameters ka = 1, 2, 5, 10 for a = 10 mm = const. Graphs of the modulus of the ratio of the average

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USSR

ANDREYEV, V. P., MIKHAYLOV, I. G., Vestnik Leningradskogo universiteta, No. 4, Nov 70, pp 48-56

pressure on the receiver to the pressure of an ideally plane wave as a function of the generalized distance showed that with an increase in k the number of oscillations rises but their amplitude decreases, so that the first diffraction maximum appears for $ka = 5$. It is suggested that the tables can be used to calculate diffraction corrections in measurements of the speed of ultrasound and of absorption in the case of a uniform distribution of the amplitudes of oscillatory velocities on the emitter under uniform sensitivity of the receiver over the entire surface.

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UDC 534.22

USSR

MIKHAYLOV, I. G., POLUNIN, V. M., and SOLOV'YEV, V. A., Leningrad State University

"Velocity and Absorption of Ultrasonic Waves in Several Viscous Liquids at Pressures up to 1000 atm"

Moscow, Akusticheskiy Zhurnal, Vol 27, vyp 1, 71, pp 103-109

Abstract: This article discusses the results of measuring the velocity and coefficient of absorption of ultrasound in several viscous liquids as a function of pressure (1-1000 atm) and temperature (8-50°).

The various devices used for the acoustic measurements are described and depicted graphically in six figures and two tables.

Figure 1 is a block-schematic of the device used to measure the velocity and coefficient of absorption of ultrasound in liquids under pressure. The acoustic cell is shown in Figure 2, and the relative change in sound velocity is shown graphically in Figure 3 as a function of pressure at 20°; Table 1 gives the results of measuring the sound velocity as a function of pressure and temperature.

Figure 4 is a graphic representation of the coefficient of absorption of ultrasound as a function of pressure, measured at a frequency of 4 MHz at

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USSR

MIKHAYLOV, I. G., et al., Akusticheskiy Zhurnal, Vol 27, vyp 1, 71, pp 103-109

20°, and of the classical coefficient of absorption computed under these conditions from the Stokes formula. From this figure it is clear that the coefficient of absorption measured at atmospheric pressure is approximately eight times smaller than the Stokes value. Table 2 (and Table 1 also) gives the physical parameters of the liquid measured for various hydrostatic pressures.

Figure 5 shows the curve of the frequency function given for 20° and at atmospheric pressure, indicating that the relaxation time depends identically on pressure and temperature.

Figure 6 shows the relative change in relaxation time as a function of pressure in several liquids; the figure indicates that the relaxation time grows in certain liquids with increase in pressure, whereas in others it diminishes or remains constant. An increase in relaxation time, with the application of pressure, apparently is characteristic only of structural relaxation and thus may be used as an indication thereof.

This article cites 12 literature references; included also are 6 figures, 3 equations, and 2 tables.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

1/2 033 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--SOUND ABSORPTION IN MOLTEN TIN AND THALLIUM -U-

AUTHOR-(03)-GITIS, M.B., MIKHAYLOV, I.G., NIYAZOV, S.

COUNTRY OF INFO--USSR

SOURCE--AKUST. ZH. 1970, 16(1), 141-2

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--LIQUID METAL, TIN, THALLIUM, X RAY ANALYSIS, SOLID STATE, SOUND ABSORPTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1989 STEP NO--UR/0046/70/016/001/0141/0142

CIRC ACCESSION NO--AP0118948

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

2/2 033 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0118948

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ACOUSTIC PROPERTIES OF SN AND TL WERE STUDIED IN CONNECTION WITH THE DIVISION OF METALS INTO GROUPS. THE MOLTEN TL CAN BE CONSIDERED AS A "NORMAL" METAL; ITS SOUND VELOCITY DECREASES LINEARLY WITH THE TEMP. AND THE TEMP. DEPENDENCE OF ITS ABSORPTION COEFF. IS NEARLY THE SAME AS THAT OF THE MOLTEN PH. THE LIQUEFIED SN, ON THE OTHER HAND, CANNOT BE CONSIDERED AS A "NORMAL METAL"; THE COEFF. OF THE SOUND ABSORPTION INCREASES WITH THE TEMP. INCREASE, BUT THIS INCREASE BECOMES SLOWER AT GREATER THAN 550DEGREES. X RAY ANAL. ALSO SHOWS AN ABNORMAL BEHAVIOR: AT THE MELTING OF THE METAL A PHASE OF A GREATER D. IS FORMED AND SUBSISTS SIMULTANEOUSLY WITH THE LESS DENSE ONE, PROPER TO THE SOLID STATE. THIS ABNORMAL STRUCTURE DISAPPEARS PROGRESSIVELY WITH THE TEMP. INCREASE. FACILITY: LENINGRAD. GOS. UNIV., LENINGRAD, USSR.

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

UNCLASSIFIED PROCESSING DATE--09DEC70

1/3 021

TITLE--ABSORPTION OF ULTRASONIC WAVES IN LIQUIDS MEASURED BY WEDGE METHOD -U-

AUTHOR-(02)-ANDREYEV, V.P., MIKHAYLOV, I.G.

COUNTRY OF INFO--USSR

SOURCE--LENINGRAD, VESTNIK LENINGRADSKOGO UNIVERSITETA, SERIYA FIZIKA I KHIMIYA, NO 1, FEB 70, PP 70-74

DATE PUBLISHED----FEB70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ULTRASONIC WAVE, ULTRASOUND ABSORPTION, MINERAL OIL, ACOUSTIC MEASURING INSTRUMENT/(U)IAB451 SCHLIEREN DEVICE, (U)D1 OIL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UR/0054/70/000/001/0070/0074

PROXY REEL/FRAME--1995/1501

CIRC ACCESSION NO--AP0116925

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

UNCLASSIFIED PROCESSING DATE--09OCT70

2/3 021

CIRC ACCESSION NO--AP0116925

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS UNDERTOOK TO DETERMINE THE LIMITS OF THE APPLICABILITY OF THE WEDGE METHOD FOR MEASURING THE ABSORPTION OF ACOUSTIC WAVES IN LIQUIDS AND, IN THIS CONNECTION, ATTEMPTED AN EXPERIMENTAL STUDY OF THE ACOUSTIC FIELD OF THE WEDGE, AS WELL AS TO MODEL A WEDGE SHAPED RADIATOR. AN IAB-451 SCHLIEREN DEVICE WAS USED TO STUDY THE ACOUSTIC FIELD OF THE WEDGE. THREE 28 TIMES 70 MM WEDGES WERE USED. THE PHOTOGRAPH OF THE ACOUSTIC FIELD OF THE WEDGE SHOWS THAT THE WEDGE DOES NOT GIVE A MARKEDLY DIVERGENT BEAM OF ULTRASONIC WAVES. IT IS SUGGESTED THAT THE STRUCTURE OF THE FIELD OF A WEDGE SHAPED RADIATOR IS OF A SPECIAL CHARACTER, DUE TO THE FACT THAT THE UNEXCITED PARTS OF THE WEDGE REPRESENT A TWO SIDED RIGID SCREEN. THE AMPLITUDE DISTRIBUTION ON THE SURFACE OF A PLATE ENCLOSED IN THE RIGID SCREEN SHOULD DIFFER FROM THE AMPLITUDE DISTRIBUTION ON THE SURFACE OF A FREE EQUIVALENT PLATE. IN ORDER TO TEST THIS HYPOTHESIS, THE AUTHORS CONSTRUCTED A MODEL OF A WEDGE SHAPED RADIATOR IN THE FORM OF A RECTANGULAR PLANE PARALLEL PLATE WITH AN AREA EQUIVALENT TO THE RADIATING STREAK OF THE WEDGE, GLUED INTO A TWO SIDED RIGID SCREEN OF FUSED QUARTZ. PHOTOGRAPHS OF THE ACOUSTIC FIELD OF THE EQUIVALENT PLATE ENCLOSED IN THE INFINITE SCREEN AND OF THE ACOUSTIC FIELD OF AN EQUIVALENT PLATE WITHOUT A SCREEN SHOW THAT THE LATTER RADIATOR GIVES A DIVERGENT BEAM OF ULTRASONIC WAVES AND ITS FIELD IS CONSIDERABLY WORSE THAN IN THE CASE OF THE EQUIVALENT PLATE ENCLOSED IN THE RIGID SCREEN. THE RESULTS WERE VERIFIED BY MEASURING ULTRASONIC ABSORPTION IN O-1 TYPE MINERAL OILS BY THE OPTICAL METHOD, AS WELL AS BY THE PULSE METHOD.

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UNCLASSIFIED PROCESSING DATE--090CT70

3/3 021

CIRC ACCESSION NO--AP0116925

ABSTRACT/EXTRACT--GOOD AGREEMENT WAS FOUND BETWEEN THE RESULTS OF THE WEDGE METHOD AND THOSE OF THE STANDARD PULSE METHOD. THE RESULTS INDICATE THAT THE ACOUSTIC FIELD OF THE WEDGE IS EQUIVALENT TO THE FIELD OF A RECTANGULAR PLATE IN A RIGID SCREEN. IT IS SUGGESTED THAT THERE IS A GAUSSIAN TYPE DISTRIBUTION OF VIBRATIONAL DELOCITY AMPLITUDES ON THE SURFACE OF THE RADIATOR IN THIS CASE. THE AUTHORS THANK A. S. KHIMUNIN FOR TAKING PART IN THE DISCUSSION OF THE RESULTS AND L. I. SAVINA FOR MEASURING THE ULTRASONIC ABSORPTION IN D-1 OIL BY THE PULSE METHOD.

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USSR

UDC 534.232

ANDREYEV, V. P., and MIKHAYLOV, I. G.

"Absorption of Ultrasonic Waves in Liquids Measured by Wedge Method"

Leningrad, Vestnik Leningradskogo Universiteta -- Seriya Fizika i Khimiya, No 1, Feb 70, pp 70-74

Abstract: The authors undertook to determine the limits of the applicability of the wedge method for measuring the absorption of acoustic waves in liquids and, in this connection, attempted an experimental study of the acoustic field of the wedge, as well as to model a wedge-shaped radiator. An IAB-451 Schlieren device was used to study the acoustic field of the wedge. Three 28x70-mm wedges were used. The photograph of the acoustic field of the wedge shows that the wedge does not give a markedly divergent beam of ultrasonic waves. It is suggested that the structure of the field of a wedge-shaped radiator is of a special character, due to the fact that the unexcited parts of the wedge represent a two-sided rigid screen. The amplitude distribution on the surface of a plate enclosed in the rigid screen

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

USSR

ANDREYEV, V. P., and MIKHAYLOV, I. G., Vestnik Leningradskogo Universiteta -- Seriya Fizika i Khimiya, No 1, Feb 70, pp 70-74

should differ from the amplitude distribution on the surface of a free equivalent plate.

In order to test this hypothesis, the authors constructed a model of a wedge-shaped radiator in the form of a rectangular plane-parallel plate with an area equivalent to the radiating streak of the wedge, glued into a two-sided rigid screen of fused quartz. Photographs of the acoustic field of the equivalent plate enclosed in the infinite screen and of the acoustic field of an equivalent plate without a screen show that the latter radiator gives a divergent beam of ultrasonic waves and its field is considerably worse than in the case of the equivalent plate enclosed in the rigid screen. The results were verified by measuring ultrasonic absorption in D-1 type mineral oils by the optical method, as well as by the pulse method.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

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ANDREYEV, V. P., and MIKHAYLOV, I. G., Vestnik Leningradskogo Universiteta -- Seriya Fizika i Khimiya, No 1, Feb 70, pp 70-74

Good agreement was found between the results of the wedge method and those of the standard pulse method.

The results indicate that the acoustic field of the wedge is equivalent to the field of a rectangular plate in a rigid screen. It is suggested that there is a Gaussian-type distribution of vibrational velocity amplitudes on the surface of the radiator in this case.

The authors thank A. S. KHIMUNIN for taking part in the discussion of the results and L. I. SAVINA for measuring the ultrasonic absorption in D-1 oil by the pulse method.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

USSR UDC: 534.286

MIKHAYLOV, I. G., POLUNIN, V. M., Leningrad State University

"Concerning the Question of Structural Relaxation in Liquids"

Moscow, Akusticheskiy Zhurnal, Vol 18, No 2, Apr-Jun 72, pp 286-291

Abstract: Dilatational and shear viscosity are studied as a function of pressure in glycerin containing 0.02% water. Ultrasonic absorption was measured on a frequency of 4 MHz at 30°C in the 1-1000 atmosphere pressure range (in 250 atmosphere intervals). It was found that the dilatational-to-shear viscosity ratio η_v/η_s is close to unity (as is typical of liquids with a structural relaxation mechanism) and shows a slight reduction with increasing pressure (from 1.24 to 1.16 over the entire measurement range). a simple structural model is proposed for liquids of this type to explain the experimental results. The liquid is assumed to be a viscous, slightly compressible medium containing small spherical cavities with relatively high compressibility. Calculations show that such a hypothetical fluid should have a dilatational viscosity approximately equal to its shear viscosity and that the relaxation times for those viscosities should coincide.

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USSR

UDC: 532.782+541.6

MIKHAYLOV, I. G., SAFINA, E. B., and FEDOROVA, N. M.

"Investigating Ultrasonic Absorption as a Function of Temperature in Concentrated Solutions of Polymethylmetacrylate and Polystyrol in a Broad Frequency Range"

Leningrad, Vestnik Leningradskogo Universiteta, No 10, May 1972, pp 47-49

Abstract: There is a great deal of interest in the effect of temperature on the absorption of ultrasonic waves in concentrated polymer solutions. Hence the reason for this paper, which investigates this absorption in polymethylmetacrylate (PMMA), polystyrol (PS), and polyisobutyl (PIB) as a function of the temperature. These substances were dissolved in toluol and methylethylketone at concentrations of 3, 5, and 8 g/100 ml. The range of frequencies investigated was 9-900 MHz in the temperature range of 0.4-40° C. Absorption measurements for the PMMA and PS solutions were also made at 60° C, and at these temperatures measurements of the ultrasonic wave velocities at a frequency of 23.6 MHz

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USSR

MIKHAYLOV, I. G., et al, Vestnik Leningradskogo Universiteta, No 10, May 1972, pp 47-49

were also being conducted. The absorption measurements were made by the pulse method and the velocity measurements were made by the interferometric method. Error for the absorption measurements was 5-7%, and for the velocity measurements 0.5%. This article is the sequel to two earlier articles by the authors named above (Akust. zh. 17, No 3, 1971, p 400; Vestnik LGU, No 4, 1972, p 56).

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

USSR

KOL'TSOVA, I. S.; MIKHAYLOV, I. G.: SABUROV, B.

"Propagation of Ultrasonic Waves in Organic Emulsions"

Leningrad, Vestnik Leningradskogo Universiteta: Fizika - Khimiya; January-March 1973, pp 52-7

Abstract: A pulse method was used in the study of ultrasonic wave absorption in organic emulsions in the 3-27-megacycle frequency range at temperatures of 5 to 20°C. In benzene emulsions with particles averaging 8 microns in size the main kinds of losses are those caused by heat exchange as well as those due to scattering depending on the voluminal and shear viscosities. For bromobenzene and nitrobenzene emulsions with particles averaging 4 microns in size the losses due to heat exchange and friction predominate over other kinds of losses. The difference in the main mechanisms of absorption in the emulsions is reflected in a variation of the supplementary absorption coefficient with frequency and does not affect the variation of the supplementary absorption coefficient with temperature. The results of the experiment are in good agreement with the theoretical data.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

USSR

UDC: 621.398

MIKHAYLOV, I. L., TUPAS, V. I., STULOV, V. A., SHCHEDROV, N. I., and PUKHOVICH, V. M. /Automation Institute/

"Frequency Selector Device"

USSR Author's Certificate No 299945, filed 8 Dec 69, published 27 May 71 (from RZh-Avtomatika, telemekhanika i vychislitel'naya tekhnika, No 12, 1971, Abstract No 12A237P)

Translation: A frequency selector device contains an oscillatory circuit, a nonlinear frequency-dependent circuit, and a rectifier. It differs in that, with the purpose of providing band pass stability and a constant output signal level, the nonlinear frequency-dependent circuit is in the form of a series-connected differentiating and integrating RC network, while the differentiating circuit is connected with autotransformer coupling to the input of the oscillatory circuit, whose load is connected in series to the load of the rectifier for the voltage picked up from the secondary winding of the oscillatory circuit.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

USSR UDC: 621.396.662.4

MIKHAYLOV, I. I., TUPAS, V. I., STULOV, V. A., SHCHEDROV, N. T., PUKHOVICH, V. M., Institute of Automation

"A Frequency-Selective Device"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 12, Apr 71, Author's Certificate No 299945, Division H, filed 8 Dec 69, published 26 Mar 71, p 207

Translation: This Author's Certificate introduces a frequency-selective device which contains a tank circuit, a nonlinear frequency-dependent circuit and rectifiers. As a distinguishing feature of the patent, in order to stabilize the passband and make the output signal level constant, the nonlinear frequency-dependent circuit is made in the form of a differentiating RC network and an integrating RC network connected in series. The differentiating network is connected by autotransformer coupling to the input of the tank circuit, and the integrating network is connected to the input of a rectifier whose load is connected in series with the load of the rectifier for the voltage taken from the secondary winding of the tank circuit.

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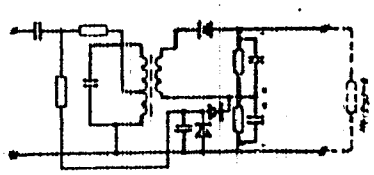
MIKHAYLOV, I. I., USSR Author's Certificate No 299945



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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

USSR UDC: 621.396.69:621.316.543(088.8)

MIKHAYLOV, I. L.

"A Microswitch Drive"

USSR Author's Certificate No 265215, filed 27 Mar 68, published 23 Jun 70 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1V317 P)

Translation: This Author's Certificate introduces a microswitch drive which contains a cam which is mounted on a shaft and has a working surface running at an angle close to 90°, and a lever located between the cam and the push rod of the microswitch. To improve operating accuracy during forward and reverse travel of the rod, an additional cam is mounted on the above-mentioned shaft with a working surface running at an angle of close to 90°, kinematically coupled to the lever by a spring supported fork.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020016-6

Acc. Nr: AP0047229 Ref. Code: UR 0216

PRIMARY SOURCE: Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, 1970, Nr 1, pp 111-113

Mikhaylov, I. N.; Khoroshkov, Yu. A.

ELECTRONMICROSCOPICAL INVESTIGATION OF THE EPIDERMIS AND THE SKELETAL MUSCLE OF MAN FIXED WITH FORMALDEHYDE

Research Laboratory, Ministry of Health, USSR

Electronmicroscopical investigation of the effect of formaldehyde fixation on the ultrastructure of a skeletal muscle and epidermis of man was carried out. The results showed that formaldehyde fixation does not cause tangible chages in the ultrastructure of the tissues investigated. The general picture of the ultrastructural organization of the epidermis and the striated muscular tissue practically does not differ from the controls. Formaldehyde fixation reveals most clearly the fibrillar components (myofibrils in muscle cells, tonofibrils and tonofilaments in epidermal cells).

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Formaldehyde fixation calls forth a slight size increase of the volume of some mitochondria and the elements of the sacroplasmatic reticulum. An increase of the melanine type pigment is observed in the cells of the lower layers of the epidermis.

Considering the changes just mentioned the data obtained entitle one to recommend a 10% solution of neutral formaldehyde as a fixative fluid for electronmicroscopical investigations.

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